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Zhen Liu

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HICKMAN PALERMO TRUONG & BECKER/ORACLE

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/810,152
Filing Date: March 26, 2004
Appellant(s): LIU ET AL.

Malgorzata A Kulczycka
For Appellant

EXAMINER'S ANSWER

Art Unit: 2166

This is in response to the appeal brief filed 10/06/2009 appealing from the Office action mailed 06/08/2009.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

US 6,785,673 B1

FERNANDEZ ET AL.

08-2004

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 – 50 are rejected under 35 U.S.C. 102(e) as being anticipated by
Fernandez et al. ('Fernandez' herein after) (US 6,785,673 B1).

With respect to claims 1 and 20,

Fernandez discloses a method comprising the computer-implemented steps of:
detecting that a portion of a query execution plan to service a request for data will cause
a first producer execution unit that will perform said portion, according to said query
execution plan, to generate XML data for use by a second consumer execution unit in
performing another portion of said query execution plan (Figures 6, 7, Fernandez);
generating information to send to said first execution unit to cause said first execution

Art Unit: 2166

unit to perform said portion of said query execution plan (column 37 lines 48 – 61, Fernandez); wherein said information would cause first execution unit to generate said XML data in a first form that cannot be used by said second execution unit and annotating said information with an annotation (column 35 lines 64 – 67 and column 36 lines 25 – 35, Fernandez) that causes XML data generated by said first execution unit to be transformed to a canonical form for use by said second execution unit in performing said another portion of said query execution plan (column 28 lines 1 – 5, Fernandez), wherein said annotating causes removal of one or more references to execution unit-specific data that is accessible by the first execution unit but that is not accessible by the second execution unit (column 28 lines 1 – 10, column 6 lines 61 - 67 followed through with column 7 lines 1 – 19, Fernandez).

With respect to claims 2 and 21,

Fernandez discloses the method of claim 1, wherein the step of generating information includes generating information that, prior to annotating said information, would cause said first execution unit to generate said XML data in a first form that cannot be used by said second execution unit, and wherein said canonical form is different from said first form (column 6 lines 61 – 67 and column 7 lines 1 – 19, Fernandez).

With respect to claims 3 and 22,

Art Unit: 2166

Fernandez discloses the method of claim 2, wherein said first form includes information to locate data that is stored in memory that is exclusive to said first execution unit, and wherein said information to locate data stored in said memory cannot be used by said second execution unit (column 7 lines 1 – 19, Fernandez).

With respect to claims 4 and 23,

Fernandez discloses the method of claim 1, wherein said request for data is a database query and said plan is a query plan (column 11 lines 31 – 36 and 58 – 64, Fernandez).

With respect to claims 5 and 24,

Fernandez discloses the method of claim 4, wherein said information is one or more database commands (column 12 lines 38 – 59, Fernandez).

With respect to claims 6 and 25,

Fernandez discloses the method of claim 1, wherein said annotation specifies a transformation operator (column 35 lines 31 – 48, Fernandez).

With respect to claims 7 and 26,

Fernandez discloses the method of claim 6, further comprising the computer-implemented steps of: executing said transformation operator, by said first

Art Unit: 2166

execution unit, to transform XML data generated by said first execution unit to said canonical form (column 35 lines 64 – 67 and column 36 lines 25 – 35, Fernandez); and sending XML data that is transformed by said first execution unit to said second execution unit in said canonical form (column 28 lines 1 – 5, Fernandez).

With respect to claims 8 and 27,

Fernandez discloses the method of claim 6, wherein said annotation specifies arguments for said transformation operator, to specify said canonical form (column 35 lines 31 – 48, Fernandez).

With respect to claims 9 and 28,

Fernandez discloses the method of claim 1, further comprising the computer-implemented steps of: transforming, by said first execution unit, said XML data to said canonical form based on said annotation (column 35 lines 64 – 67 and column 36 lines 25 – 35, Fernandez).

With respect to claims 10 and 29,

Fernandez discloses the method of claim 1, wherein the step of annotating includes annotating said information with an operator to transform said XML data to a canonical form in which said XML data is serialized to represent particular data for a particular XML construct and is included in a serialized image that is

sent to said second execution unit (column 1 lines 24 – 46, Fernandez).

With respect to claims 11 and 30,

Fernandez discloses the method of claim 1, wherein the step of annotating includes annotating said information with an operator to transform said XML data to a canonical form which includes an identifier of memory space where data is persistently stored, and wherein said data in said memory space is accessible by said second execution unit (column 33 lines 21 – 37, Fernandez).

With respect to claims 12 and 31,

Fernandez discloses the method of claim 1, wherein the step of annotating includes annotating said information with an operator to transform said XML data to a canonical form in which said XML data is compressed according to a particular compression form that said second execution unit is able to decompress (column 2 lines 16 – 59, Fernandez).

With respect to claims 13 and 32,

Fernandez discloses the method of claim 1, wherein said first execution unit and said second execution unit are different execution units that are executing, in parallel, work associated with servicing said request (column 18 lines 14 – 24, Fernandez).

With respect to claims 14 and 33,

Fernandez discloses the method of claim 1, wherein said first execution unit and said second execution unit are different execution units that are each executing, on different servers of a distributed database system, work associated with servicing said request (column 18 lines 14 – 24, Fernandez).

With respect to claims 15 and 34,

Fernandez discloses the method of claim 1, wherein the steps of detecting, generating and annotating are performed by a means that distributes work associated with servicing said request to said first execution unit and said second execution unit, and wherein said first execution unit and said second execution unit are different execution units that are each executing work associated with servicing said request (column 27 lines 59 – 67 and column 28 lines 1 – 5, Fernandez).

With respect to claims 16 and 35,

Fernandez discloses the method of claim 15, wherein said first execution unit and said second execution unit are each executing, on different data sources, work associated with servicing said request (Figures 1, 2 and 6 Fernandez).

With respect to claims 17 and 36,

Art Unit: 2166

Fernandez discloses the method of claim 15, wherein said means that distributes work comprises an application server (column 28 lines 1 – 5, Fernandez).

With respect to claims 18 and 37,

Fernandez discloses the method of claim 15, wherein said means that distributes work comprises an application that manages workload among multiple means for executing said work (Figures 1, 2 and 6 Fernandez).

With respect to claims 19 and 38,

Fernandez discloses the method of claim 1, further comprising the computer-implemented steps of: determining said canonical form from information that describes preferences of each of multiple execution units that performs work associated with servicing said request (column 28 lines 1 – 5, Fernandez).

With respect to claims 39 and 42,

Fernandez discloses a method for processing XML data, comprising the computer-implemented steps of: receiving information at a first execution unit to cause said first execution unit to perform work associated with servicing a request for data (Figures 6, 7, Fernandez); wherein said information comprises an annotation that causes the XML data generated by said first execution unit to be transformed to a canonical form for use by a second execution unit; wherein said information, without said annotation, would cause said second execution

Art Unit: 2166

unit to receive from said first execution unit XML data in a first form that cannot be used by said second execution unit (column 37 lines 48 – 61, Fernandez); transforming XML data generated by said first execution unit to said canonical form prior to providing said XML data to said second execution unit (column 35 lines 64 – 67 and column 36 lines 25 – 35, Fernandez); and providing XML data that is transformed to said second execution unit in said canonical form (column 28 lines 1 – 5, Fernandez), wherein transforming XML data comprises removing one or more references to execution unit specific data that is accessible to the first execution unit but that is not accessible to the second execution unit (column 28 lines 1- 10 and column 6 lines 61-67 followed through with column 7 lines 1 – 19, Fernandez).

With respect to claims 40 and 43,

Fernandez discloses the method of claim 39, wherein the step of transforming said XML data to said canonical form is performed by said first execution unit (column 6 lines 61 – 67 and column 7 lines 1 – 19, Fernandez).

With respect to claims 41 and 44,

Fernandez discloses the method of claim 40, wherein the step of transforming comprises executing an operator specified in said annotation (column 7 lines 1 – 19, Fernandez).

With respect to claim 45,

Fernandez discloses a database system comprising: a query optimizer that receives a database query, formulates a query plan based on said query, and sends information based on said plan to a first execution unit (Figures 6, 7, Fernandez); wherein formulating a plan includes determining that said first execution unit produces XML data for use by a second execution unit (column 37 lines 48 – 61, Fernandez), and determining whether said first execution unit produces said XML data in a first form that said second execution unit is able to use (column 35 lines 64 – 67 and column 36 lines 25 – 35, Fernandez); said first execution unit that receives said information from said query optimizer and said second execution unit that receives said XML data from said first execution unit (column 28 lines 1 – 5, Fernandez).

With respect to claim 46,

Fernandez discloses the system of claim 45, wherein, if it is determined that said second execution unit is able to use said XML data in said first form, said information that said query optimizer sends to said first execution unit comprises a direction to send said XML data in said first form to said second execution unit (column 6 lines 61 – 67 and column 7 lines 1 – 19, Fernandez); said first execution unit produces XML data in said first form while servicing said query, and sends said XML data to said second execution unit; and said second

Art Unit: 2166

execution unit receives said XML data in said first form, and services said query based on said XML data in said first form (column 7 lines 1 – 19, Fernandez).

With respect to claim 47,

Fernandez discloses the system of claim 45, wherein, if it is determined that said second execution unit is unable to use said XML data in said first form, said information that said query optimizer sends to said first execution unit comprises transformation information that causes said first execution unit to transform said XML data that is produced by said first execution unit to a second form that said second execution unit is able to use (column 11 lines 31 – 36 and 58 – 64, Fernandez); said first execution unit produces transformed XML data in said second form based on said transformation information while servicing said query, and sends said transformed XML data to said second execution unit (column 12 lines 38 – 59, Fernandez); and said second execution unit receives said transformed XML data in said second form, and services said query based on said transformed XML data column 35 lines 64 – 67 and column 36 lines 25 – 35, Fernandez).

With respect to claim 48,

Fernandez discloses the system of claim 45, wherein said first execution unit and said second execution unit are different execution units that are servicing said request by performing work in parallel (column 18 lines 14 – 24, Fernandez).

With respect to claim 49,

Fernandez discloses the system of claim 45, wherein said first execution unit and said second execution unit are different execution units that are servicing said request by performing work on different servers of a distributed database system (column 18 lines 14 – 24, Fernandez).

With respect to claim 50,

Fernandez discloses a system comprising: means for detecting that a portion of a query execution plan to service a request for data will cause a first producer execution unit that will perform said portion according to said query execution plan, to generate XML data for use by a second consumer execution unit in performing another portion of said query execution plan (Figures 6, 7, column 37 lines 48 – 61, Fernandez); means for generating information to send to said first execution unit to cause said first execution unit to perform said portion of said query execution plan (column 35 lines 64 – 67 and column 36 lines 25 – 35, Fernandez); wherein said information would cause said first execution unit to generate said XML data in a first form that cannot be used by said second execution unit; and means for annotating said information with an annotation that causes XML data generated by said first execution unit to be transformed to a canonical form for use by said second execution unit in performing said another portion of said query execution plan (column 28 lines 1 – 5, Fernandez), wherein

Art Unit: 2166

said annotating causes removal of one or more references to execution unit-specific data that is accessible by the first execution unit but that is not accessible by the second execution unit.

(10) Response to Argument

Appellant argues that Fernandez does not teach “detecting that a portion of a query execution plan... will cause a first producer execution unit, that will perform said portion, to generate XML data for use by a second consumer execution unit in performing another portion of said query execution plan.

In response to Appellant’s arguments Examiner submits that Fernandez teaches detecting that a portion of a query execution plan... will cause a first producer execution unit, that will perform said portion, to generate XML data for use by a second consumer execution unit in performing another portion of said query execution plan. This is disclosed in column 2 lines 16 – 28, column 6 lines 61 – 67, column 37 lines 31 – 40 and 48 – 61 and 36 lines 25 – 35, also see column 35 lines 42 – 48. In these cited portions Fernandez discloses how data processed by the first execution unit is then used in the next execution units/steps to process the data.

Appellant argues that Fernandez’ query execution plan does not have two execution units executing portions of a query execution plan,

where the second unit uses the XML data generated by the first unit as recited in claim 1.

In response to Appellant's arguments Examiner submits that Fernandez' query execution plan has two execution units executing portions of a query execution plan, where the second unit uses the XML data generated by the first unit as recited in claim 1, This is clearly explained in column 37 lines 31 – 40 and 48 – 61 where it discloses how the execution plan is split the execution, thereby having two or more execution units to accomplish the task at hand. Also see column 38 lines 13 – 23.

Appellant argues that execution of the Fernandez query execution plan returns relational data tuples not XML data as in claim 1.

In response to Appellant's arguments Examiner submits that Fernandez query execution plan returns XML data and not tuples as being misunderstood by the applicant. This is clearly disclosed in column 36 lines 25 – 35, also see column 35 lines 42 – 48.

Appellant argues that in Fernandez the mapping between variables in the RXL query and the relational data is not used in performing another portion of said query execution plan as recited in claim 1.

In response to Appellant's arguments Examiner submits that in Fernandez mapping between variables in the RXL query and the relational data is not used

in performing another portion of said query execution plan as recited in claim 1, This is clearly explained in column 37 lines 31 – 40 and 48 – 61 where it discloses how the execution plan is split the execution, thereby the result of one being used by the next execution unit to continue the process to get the result. Also see column 38 lines 13 – 23.

Appellant argues that there is no teaching in Fernandez of annotating said information with an annotation that causes xml data generated by said first execution unit to be transformed.....said query execution plan.

In response to Appellant's arguments Examiner submits that Fernandez teaches the annotating said information with an annotation that causes xml data generated by said execution unit Examiner would like to acknowledge the examples and explanation given as to regards with what the invention is in the response. Furthermore, examiner finds support for "annotating said information with an annotation that causes xml data generated by said first execution unit to be transformed.....said query execution plan" in Fernandez in column 6 lines 61 – 67 through column 7 lines 1 – 19 and column 28 lines 1 – 10. In these cited portions Fernandez annotation of information is shown, this annotation causes the xml data generated to be transformed. Also Fernandez throughout its disclosure explains transforming xml data to a canonical form compliant as xml data also referred to as canonical mapping.

Appellant argues that Fernandez does not teach wherein the step of generating information includes generating information that prior to annotating said information would cause said first execution unit to generate said XML data in a first form that cannot be used by said execution unit.

In response to Appellant's arguments Examiner submits that Fernandez teaches the step of generating information generating information that prior to annotating said information would cause said first execution unit to generate said XML data in a first form that cannot be used by said execution unit, this is explained in column 37 lines 31 – 40 and 48 – 61 where it discloses how the execution plan is split the execution, thereby having two or more execution units to accomplish the task at hand. Also see column 38 lines 13 – 23.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Navneet K. Ahluwalia/

Examiner, Art Unit 2166

Conferees:

/Hosain T Alam/

Supervisory Patent Examiner, Art Unit 2166

/Shahid Al Alam/

Primary Examiner, Art Unit 2162